

# Wei Ma

---

## CONTACT INFORMATION

The Hong Kong Polytechnic University  
Department of Civil & Environmental Engineering  
Block Z, ZS 950  
Hung Hom, Kowloon, Hong Kong

Work: +852-6364-7045  
E-mail: wei.w.ma@polyu.edu.hk  
Web: www.weima171.com

## ACADEMIC APPOINTMENTS

**The Hong Kong Polytechnic University**, Kowloon, Hong Kong

- Assistant Professor 2020 - present

**Carnegie Mellon University**, Pittsburgh, PA, USA

- Postdoctoral Research Associate 2019 - 2020
- Graduate Research Assistant 2014 - 2019

**Singapore-MIT Alliance for Research and Technology (SMART)**, Future Mobility, Singapore

- Summer Research Intern 2013 - 2013

**Tsinghua University**, Beijing, China

- Research Assistant 2012 - 2014

## EDUCATION

**Carnegie Mellon University**, Pittsburgh, PA, USA

Doctor of Philosophy, Civil and Environmental Engineering 2014 - 2019

- Thesis Topic: *Statistical Inference of Spatio-Temporal Transportation Networks through Large-scale Multi-source Data*
- Advisor: Professor Sean Qian
- Committee members: Professor Chris Hendrickson, Professor Ramayya Krishnan, Professor Alexandre Jacquillat, Professor Matteo Pozzi

M.S., Machine Learning 2017 - 2018

- Thesis Topic: *An Interpretable Produce Price Forecasting System for Small Farmers in India using Collaborative Filtering and Adaptive Nearest Neighbors*
- Advisor: Professor George H. Chen

M.S., Civil and Environmental Engineering 2014 - 2015

- Thesis Topic: *Generalized Statistical Traffic Assignment (GESTA): Methodology, Properties and Variance Analysis*
- Advisor: Professor Sean Qian

**Tsinghua University**, Beijing, China

B.S., Pure and Applied Mathematics 2011 - 2014

- Thesis Topic: *Dynamic Parking Prices for Urban Commuters*
- Advisor: Professor Jinxing Xie

B.S., Civil Engineering 2010 - 2014

- *Magna cum Laude*, with honors in engineering
- Thesis Topic: *DynaMIT-based Origin-Destination Estimation using AVI data*
- Advisor: Professor Ruimin Li

## RESEARCH INTERESTS

- AI and ML in transportation, infrastructure and energy
- Connected and automated systems
- Cyber-physical systems (CPS)
- Urban computing
- Urban systems interdependency
- Intelligent transportation system (ITS)
- Data-driven and probabilistic network modeling
- Multi-source data mining

HONORS AND  
AWARDS

- Mao Yisheng Outstanding Dissertation Award, Carnegie Mellon University, 2020
- Best presentation award at the Young Professionals Lightning Talk Session of the 23rd COTA Winter Symposium, 2020
- Best paper award (theoretical track) at INFORMS Data Mining and Decision Analytics Workshop, 2019
- Global Future Council Fellowship in Mobility, World Economic Forum, 2019
- Best Data Analysis Project Presentation Award, Carnegie Mellon University, 2018
- Liang Ji-Dian Fellowship in Carnegie Mellon University, 2018
- Graduate Student Assembly/Provost Conference Funds in Carnegie Mellon University, 2018
- Student of the year, Mobility Data Analytics Center, 2017
- Fenves Travel Grant in Carnegie Mellon University, 2016 & 2017
- College of Engineering Deans Fellowship in Carnegie Mellon University, 2015
- Outstanding Graduates of Tsinghua University, 2014
- First Class Comprehensive Scholarship of Tsinghua University, 2013
- Award for Outstanding Innovation in Civil Engineering Undergraduates in China, 2013
- Excellence of Social Work Scholarship in Tsinghua University, 2013
- The Second Place of Challenge Cup Competition, Tsinghua University, 2012
- Second Place in 18th Structure Design Competition of Tsinghua University, 2012
- Excellence Scholarship of Tsinghua University, 2012 & 2011

PREPRINTS

- [1] **Wei Ma**, Xidong Pi, Zhen (Sean) Qian, “Estimating multi-class dynamic origin-destination demand through a forward-backward algorithm on the computational graph”, *Transportation Research Part C: Emerging Technologies*, under 2nd review, 2019  
<https://arxiv.org/abs/1903.04681>
- [2] **Wei Ma**, Zhen (Sean) Qian, “High-resolution Ubiquitous Traffic Sensing with Automated Vehicles”, *Transportation Research Part C: Emerging Technologies*, submitted for review, 2019  
<https://arxiv.org/abs/1910.02376>

PEER-REVIEWED  
JOURNAL PAPERS

- [3] **Wei Ma**, Zhen (Sean) Qian, “Measuring and reducing the disequilibrium levels of dynamic networks through ridesourced vehicle data”, *Transportation Research Part C: Emerging Technologies*, 110 (2020), 222-246.  
doi:10.1016/j.trc.2019.11.001
- [4] Shuguan Yang, **Wei Ma**, Xidong Pi, Zhen (Sean) Qian, “A Deep learning approach of parking occupancy prediction in network-scale incorporating multiple spatio-temporal data sources”, *Transportation Research Part C: Emerging Technologies*, 107 (2019): 248-265.  
doi:10.1016/j.trc.2019.08.010
- [5] Xidong Pi, **Wei Ma**, Zhen (Sean) Qian, “Multi-modal Dynamic User Equilibrium with Multi-class Vehicles, Ridesharing, Public Transit and Parking”, *Transportation Research Part C: Emerging Technologies*, 96 (2018): 96-121.  
doi:10.1016/j.trc.2019.05.011
- [6] **Wei Ma**, Zhen (Sean) Qian, “Estimating multi-year 24/7 origin-destination demand using high-granular multi-source traffic data.” *Transportation Research Part C: Emerging Technologies*, 104 (2019): 369-389.  
doi:10.1016/j.trc.2018.09.002
- [7] **Wei Ma**, and Zhen (Sean) Qian. “A Generalized Single-Level Formulation for Origin-Destination Estimation under Stochastic User Equilibrium.” *Transportation Research Record*, (2018): 0361198118782041.  
doi:10.1177/0361198118782041
- [8] **Wei Ma**, and Zhen (Sean) Qian. “Statistical inference of probabilistic origin-destination demand using day-to-day traffic data.” *Transportation Research Part C: Emerging Technologies*, 88 (2018): 227-256.  
doi:10.1016/j.trc.2017.12.015
- [9] **Wei Ma**, and Zhen (Sean) Qian. “On the variance of recurrent traffic flow for statistical traffic assignment.” *Transportation Research Part C: Emerging Technologies*, 81 (2017): 57-82.  
doi:10.1016/j.trc.2017.05.009
- [10] Ruimin Li, **Wei Ma** (2010) “Fusion method of road average-speed based on BP neural network and D-S evidence theory”, *Journal of Traffic and Transportation Engineering*, 14.5 (2014): 111-118. (in Chinese)

- [11] **Wei Ma\***, George H. Chen\*, “Missing Not at Random in Matrix Completion: The Effectiveness of Estimating Missingness Probabilities Under a Low Nuclear Norm Assumption”, *the Thirty-third Conference on Neural Information Processing Systems (NeurIPS 2019)*, accepted and forthcoming, 2019 (**Review Process:** Highly selective, acceptance rate 21.17%, top-tier conference in machine learning and artificial intelligent area. Double-blind peer review of complete manuscript prior to acceptance. There was an in-person technical program committee meeting to discuss the acceptance of the paper.) <https://arxiv.org/abs/1910.12774>
- [12] **Wei Ma**, Kendall Nowocin, Niraj Marathe, George H. Chen, “An Interpretable Produce Price Forecasting System for Small Farmers in India using Collaborative Filtering and Adaptive Nearest Neighbors”, *the tenth International Conference on Information and Communication Technologies and Development (ICTDX)*. (**Review Process:** Highly selective, premier conference in information and communication technologies for development (ICT4D) area. Double-blind peer review of complete manuscript prior to acceptance. There was an in-person technical program committee meeting to discuss the acceptance of the paper.)  
doi:10.1145/3287098.3287100

- [13] **Wei Ma**, Xidong Pi, Zhen (Sean) Qian, “Estimating multi-class dynamic origin-destination demand through a forward-backward algorithm on the computational graph”. In: *The 24th International Conference of Hong Kong Society for Transportation Studies (HKSTS)*, Hong Kong, December 14-16, 2019
- [14] **Wei Ma**, Zhen (Sean) Qian, “Mobility Data Analytics for Decision Making in Transportation Networks”. In: *Transportation Engineering and Safety Conference*, State College, PA, December 11-13, 2019
- [15] **Wei Ma**, George H. Chen, “Missing Not at Random in Matrix Completion: The Effectiveness of Estimating Missingness Probabilities Under a Low Nuclear Norm Assumption”. In: *The Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Seattle, WA, October 20-23, 2019
- [16] **Wei Ma**, Xidong Pi, Zhen (Sean) Qian, “Estimating multi-class dynamic origin-destination demand through a forward-backward algorithm on the computational graph”. In: *The Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Seattle, WA, October 20-23, 2019
- [17] Xidong Pi, **Wei Ma**, Zhen (Sean) Qian, “A General Formulation for Multi-modal Dynamic Traffic Assignment Considering Multi-class vehicles, Public Transit and Parking”. Poster presentation in: *The 23rd International Symposium on Transportation and Traffic Theory, ISTTT 23*, Lausanne, Switzerland, July 24-26, 2019
- [18] **Wei Ma**, Zhen (Sean) Qian, “High-resolution Ubiquitous Traffic Sensing with Automated Vehicles”. Poster and oral presentation in: *Automated Vehicles Symposium 2019*, Orlando, FL, July 15-18, 2019
- [19] **Wei Ma**, Xidong Pi, Zhen (Sean) Qian, “Estimating multi-class dynamic origin-destination demand through a forward-backward algorithm on the computational graph”. In: *The Transportation Research Board (TRB) 98th Annual Meeting*, Washington, D.C., January 13-17, 2019
- [20] **Wei Ma**, Zhen (Sean) Qian, “Estimating multi-year 24/7 origin-destination demand using high-granular multi-source traffic data”. In: *The Transportation Research Board (TRB) 98th Annual Meeting*, Washington, D.C., January 13-17, 2019
- [21] **Wei Ma**, Zhen (Sean) Qian, “Measuring and reducing the disequilibrium levels of dynamic networks through ridesourced vehicle data”. In: *The Transportation Research Board (TRB) 98th Annual Meeting*, Washington, D.C., January 13-17, 2019
- [22] Shuguan Yang, **Wei Ma**, Xidong Pi, Zhen (Sean) Qian, “A Deep learning approach of parking occupancy prediction in network-scale incorporating multiple spatio-temporal data sources”. In: *The Transportation Research Board (TRB) 98th Annual Meeting*, Washington, D.C., January 13-17, 2019
- [23] Xidong Pi, **Wei Ma**, Zhen (Sean) Qian, “Data-driven Mesoscopic Network Modeling With Cars and Trucks: A Case Study in Pittsburgh”. In: *The Transportation Research Board (TRB) 98th Annual Meeting*, Washington, D.C., January 13-17, 2019

- [24] Pengji Zhang, **Wei Ma**, Zhen (Sean) Qian, “Cluster analysis of probabilistic origin-destination demand using day-to-day traffic data”. In: *The Transportation Research Board (TRB) 98th Annual Meeting*, Washington, D.C., January 13-17, 2019
- [25] **Wei Ma**, Zhen (Sean) Qian. “Measuring and reducing the disequilibrium levels of dynamic networks through ridesourced vehicle data”. In: *The Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Phoenix, AZ, November 4-7, 2018
- [26] Xidong Pi, **Wei Ma**, Zhen (Sean) Qian. “A Data-driven Car-truck Dynamic Traffic Assignment Model”. In: *The Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Phoenix, AZ, November 4-7, 2018
- [27] Shayak Sengupta, Pablo Garcia, David Patoulias, Provat Saha, **Wei Ma**, Chris Tessum, Iannis Kioutsioukis, Zhen (Sean) Qian, Spyros Pandis, Inês Azevedo, Peter Adams, “High Resolution Chemical Transport Modeling of Ultrafine Particulate Matter over Pittsburgh”. In: *International Aerosol Conference (IAC)*, St. Louis, MO, September 2-7, 2018
- [28] **Wei Ma** and Zhen (Sean) Qian. “A Generalized Single-level Formulation for Origin-Destination Estimation under Stochastic User Equilibrium”. In: *The Transportation Research Board (TRB) 97th Annual Meeting*, Washington, D.C., January 7-11, 2018
- [29] **Wei Ma** and Zhen (Sean) Qian. “Statistical inference of probabilistic origin-destination demand using day-to-day traffic data”. In: *The Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Houston, TX, October 22-25, 2017
- [30] **Wei Ma** and Zhen (Sean) Qian. “Statistical inference of probabilistic origin-destination demand using day-to-day traffic data”. In *INFORMS Transportation and Logistics Society, First Triennial Conference*, Chicago, IL, July 26-29, 2017
- [31] **Wei Ma** and Zhen (Sean) Qian. “On the Variance of Recurrent Traffic Flow for Statistical Traffic Assignment”. In *The Transportation Research Board (TRB) 96th Annual Meeting*, Washington, D.C., January 8-12, 2017
- [32] **Wei Ma** and Zhen (Sean) Qian. “Statistical inference of probabilistic origin-destination demand using day-to-day traffic data”. In *The Transportation Research Board (TRB) 96th Annual Meeting*, Washington, D.C., January 8-12, 2017
- [33] Zhen (Sean) Qian, **Wei Ma** and Cong Ma. “Dynamic network analysis and real-time traffic management for Philadelphia Metropolitan Area”. In *The Mid-Atlantic Section of the Institute of Transportation Engineers (MASITE) and the Intelligent Transportation Society of Pennsylvania (ITSPA) Annual Meeting*, State College, PA, August 28-30, 2016
- [34] **Wei Ma** and Zhen (Sean) Qian. “Generalized Statistical Traffic Assignment (GESTA)”. In: *The Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Philadelphia, PA, November 1-4, 2015
- [35] **Wei Ma**. “Learning and Managing the Complex Transportation Systems with Multi-source Data”. In: *Department of Civil & Environmental Engineering & Construction*, University of Nevada, Las Vegas, February 10, 2020
- [36] **Wei Ma**. “Learning and Managing the Complex Transportation Systems with Multi-source Data”. In: *Department of Civil and Environmental Engineering*, The Hong Kong Polytechnic University, January 22, 2020
- [37] **Wei Ma**. “Traffic Sensing and Management with Autonomous Vehicles”. In: *State Key Laboratory of Internet of Things for Smart City*, University of Macau, January 20, 2020
- [38] **Wei Ma**, Zhen (Sean) Qian. “Real-time travel time prediction with multi-source data”. In: *2020 Consumer Electronics Show (CES)*, Las Vegas, Nevada, January 07-10, 2020
- [39] **Wei Ma**. “Learning and Managing the Complex Transportation Systems”. In: *Department of Civil and Environmental Engineering*, Jackson State University, April 24, 2019
- [40] **Wei Ma**. “Learning and Managing the Complex Transportation Systems”. In: *Department of Civil and Construction Engineering*, Kennesaw State University, April 22, 2019

INVITED  
PRESENTATIONS

- [41] **Wei Ma**, Zhen (Sean) Qian. “Traffic State Estimation with Autonomous Vehicles”. In: *Civil and Environmental Engineering Research Showcase*, March 01, 2019
- [42] **Wei Ma**. “Understanding System Dynamics and User Behaviors in Cyber-Physical-Social Systems through Multi-source Data”. In: *Department of Civil & Environmental Engineering Seminar*, Rensselaer Polytechnic Institute, October 31, 2018
- [43] Zhen (Sean) Qian, **Wei Ma**. “Estimating multi-year 24/7 origin-destination demand using high-granular multi-source traffic data”. In: *Machine Learning in Science and Engineering Conference*, June 6, 2018
- [44] **Wei Ma**, Zhen (Sean) Qian. “Measuring and reducing the disequilibrium levels of dynamic networks through ridesourced vehicle data”. In: *Civil and Environmental Engineering Poster Session*, May 05, 2018
- [45] Xidong Pi, **Wei Ma**, Zhen (Sean) Qian. “Data-driven Mesoscopic Network Modeling With Cars and Trucks: A Case Study in Pittsburgh”. In: *Civil and Environmental Engineering Poster Session*, May 05, 2018
- [46] Xidong Pi, **Wei Ma**, Shuguan Yang, Pinchao Zhang, Matthew Battifarano, Weiran Yao, Rick Grahn, Zhen (Sean) Qian, “Mobility Data Analytics Center”. In: *Annual Innovation with Impact Exhibition (IWI)*, April 12, 2018
- [47] **Wei Ma**, Zhen (Sean) Qian, “Mobility Data Analytics for Decision Making in Transportation Networks”. To: *Covestro*, March 21, 2018
- [48] Xidong Pi, **Wei Ma**, Shuguan Yang, Pinchao Zhang, Matthew Battifarano, Weiran Yao, Rick Grahn, Zhen (Sean) Qian, “Mobility Data Analytics Center”. In: *Metro21: Smart Cities Institute Launch*, March 02, 2018
- [49] **Wei Ma**. “Travelers’ Behavior Modeling, Demand Estimation and Traffic Management: a Data Perspective”. In: *graduate seminar of Civil and Environmental Engineering, Carnegie Mellon University*, March 03, 2017
- [50] Xidong Pi, **Wei Ma** and Zhen (Sean) Qian. “Mobility Data Analytics Center”. In: *Carnegie Mellon Traffic21/T-SET UTC Consortium Symposium and Research Showcase*, November 03, 2016
- [51] Zhen (Sean) Qian, Xidong Pi, **Wei Ma**, “Traffic Impact Study of CSX Pittsburgh Intermodal Rail Terminal and Mitigation Plans for McKees Rocks”, for Smart Mobility Challenge with the Borough of McKees Rocks, 2019
- [52] Zhen (Sean) Qian, **Wei Ma**, Allan Khariton, James Crnkovich, “Building an Accessible, Low-stress, Safe, and Sustainable, Bicycle Infrastructure Network for the City of Pittsburgh”, for U.S. Department of Transportation, University Transportation Centers Program, 2018
- [53] Zhen (Sean) Qian, Xidong Pi, **Wei Ma**, “Data-Driven Network Models for Analyzing Multi-Modal Transportation Systems”, for U.S. Department of Transportation, University Transportation Centers Program, 2018
- [54] **Wei Ma** and Zhen (Sean) Qian, “A Reusable and Pluggable Design of Dynamic Network Models for Agile Development: MAC-POSTS”, for Mobility Data Analytics Center, Carnegie Mellon University, 2017
- [55] **Wei Ma**, Pinchao Zhang and Zhen (Sean) Qian, “Dynamic Network Analysis & Real-time Traffic Management for Philadelphia Metropolitan Area”, Report No: FHWA-PA-2016-014-CMU WO 04, for Pennsylvania Department of Transportation (PennDOT), Federal Highway Administration (FHWA) and Carnegie Mellon University’s Technologies for Safe and Efficient Transportation (T-SET), 2016
- [56] **Wei Ma** and Zhen (Sean) Qian, “Traffic impact of the Greenfield Bridge closure (AM peak)”, for Department of Public Works, the City of Pittsburgh, 2015

TECHNICAL  
REPORTS

SOFTWARE  
DEVELOPMENT

- [1] Mobility Data Analytics Center - Prediction, Optimization, and Simulation toolkit for Transportation Systems (MAC-POSTS)
  - Data-driven dynamic network modeling toolkit encapsulated with state-of-art network flow, routing, traffic assignment, calibrations models
  - Developed by C++ and Python, over 10k lines
  - Website: [www.mac-posts.com](http://www.mac-posts.com)
- [2] Sustainable Solar Micro Cold Stores and Market Analytics tool for Indian Farmers
  - Corporated with a local startup: [CoolCrop](#)
  - Website: [India Agriculture Market Price Forecasting](#)
- [3] A Cloud-based System and Browser-based User Interfaces for Dynamic Transportation Network Simulation and Scenario Analysis
  - Developed by C++, Python and Javascript, over 5k lines
- [4] Web application: Route-Finding for Cyclists Through User-Driven Heuristics
  - Developed by Python and Javascript, over 3k lines

STUDENT  
SUPERVISION

**Graduate Research**

- **Leo Huang**, Civil and Environmental Engineering, CMU, 2019
  - Network Equilibrium with curbside ride-hailing vehicles drop-offs and pick-ups
- **Pengji Zhang**, Civil and Environmental Engineering, CMU, 2018
  - Web application for static traffic assignment and scenario analysis
  - Cluster analysis of probabilistic origin-destination demand using day-to-day traffic data
- **Arnav Choudhry**, School of Architecture, CMU, 2018
  - Stochastic community detection in transportation networks with crowd-sourced vehicle data

**Undergraduate Research**

- **Sharika Hegde**, Civil and Environmental Engineering, CMU, 2018
  - Pavement Deterioration Modeling: A Case Study in the City of Pittsburgh
- **James Crnkovich**, Civil and Environmental Engineering, CMU, 2017-2018
  - Improving Digital Route-Finding for Cyclists Through User-Driven Heuristics
- **Zach Sussman**, School of Computer Science, CMU, 2017
  - A Cloud-based System and Browser-based User Interfaces for Dynamic Transportation Network Simulation and Scenario Analysis
  - Web application for bikeability score
- **Perry Cheng** and **Noel Lau**, Civil and Environmental Engineering, CMU, 2017
  - Modeling the air pollution through dynamic traffic simulation: a case study in Pittsburgh
- **Cong (Max) Ma**, School of Computer Science, CMU, 2016
  - A Cloud-based System and Browser-based User Interfaces for Dynamic Transportation Network Simulation and Scenario Analysis

TEACHING  
EXPERIENCE

Carnegie Mellon University, Pittsburgh, PA

*Guest Lecturer*

- 94802-B, Geographic Information Systems
  - Graduate course cross-listed in Civil and Environmental Engineering and Heinz College of Information Systems and Public Policy.
  - Lecture: "Traffic Assignment Model and Traffic Impact Analysis".
  - Lecture: "Web-based GIS applications".

*Teaching Assistant*

- TA for 94802-B, Geographic Information Systems, Department of Civil and Environmental Engineering & Heinz College (cross-listed)
  - Fall 2017 and Fall 2018
  - Responsible for 3-hour office hours, supervision of 2-hour laboratory, homework grading.



- TA for 10601, *Introduction to Machine Learning*, School of Computer Science
  - Spring 2017
  - Largest graduate course in CMU, over 300 students with diverse backgrounds enrolled.
  - Responsible for 2-hour office hours, recitation, Piazza Q&A and homework grading.
  - Authored and programmed multiple autograded programming assignments using Autolab.
- TA for 12750, *Infrastructure management*, Department of Civil and Environmental Engineering
  - Spring 2017
  - Responsible for 2-hour office hours and homework grading.
- TA for 12659, A1&A2, *Special Topics: Matlab*, Department of Civil and Environmental Engineering
  - Fall 2014, 2015 and 2016
  - Responsible for 3-hour office hours and homework grading.
  - Authored part of homework assignments and solutions.

## SERVICES

### Conference Committee Member

- *2019 International Conference on Intelligent Transportation and Vehicle Engineering (ICITVE 2019)*, Chongqing, China, December 6-8, 2019

### Conference Session Chair

- *Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Large-scale Data Analytics for ITS 1 and 2, 2019*

### Referee

- *Transportation Research Part A: Policy and Practice*
- *Transportation Research Part B: Methodological*
- *Transportation Research Part C: Emerging Technologies*
- *IEEE Transactions on Intelligent Transportation Systems*
- *Networks and Spatial Economics*
- *Transportmetrica A: Transport Science*
- *Transport Policy*
- *Journal of Transportation Safety & Security*
- *Transportation Research Record (TRB) and the TRB Annual Meeting*
- *The Automated Vehicles Symposium (AVS)*
- *International Symposium on Dynamic Traffic Assignment*
- *ASCE International Conference on Transportation & Development*
- *Vehicles*
- *PLOS ONE*
- *IEEE Access*
- *COTA International Conference for Transportation Professionals*

### Editor Assistant

- *COTA International Conference for Transportation Professionals, 2018*

## PROFESSIONAL MEMBERSHIPS

- Fellow, Global Future Council in Mobility, World Economic Forum, 2019 - present
- Member, American Society of Civil Engineers (ASCE), 2016 - present
- Member, Institute for Operations Research and the Management Sciences (INFORMS), 2014- present
- Member, Transportation Research Board (TRB), 2014 - present
- Member, Association of Tsinghua Alumni in Transportation (ATAT), 2015 - present
- Member, Chinese Overseas Transportation Association (COTA), 2015 - present
- Vice President, Student Association of Science and Technology(SAST), Tsinghua University, 2013
- Member of Committee, "Green City and Future Transportation" Conference, 2013
- Member of Lunch Awareness Project, Tsinghua University, 2012
- Member, Propaganda Department of the Youth League Committee, Tsinghua University, 2011

## TECHNICAL SKILLS

### Programming Languages:

- *High performance computing:* C/C++, Java
- *Data science:* Python, MATLAB, R, SQL
- *Web application:* JavaScript, CSS, HTML

### Library & API

- *Data science:* Networkx, Pandas, Plotly
- *Parallel computing:* MPI, Boost, Hadoop, PIG, Spark

- *Web application:* Django, Tornado, peewee
- *Deep learning:* TensorFlow, PyTorch

**Tools:**

- *Cloud computing:* AWS, Git, Vim, Bash
- *Databases:* MySQL, PostgreSQL

**Language Competencies:**

- Mandarin, English, Japanese